

## ABSTRACT

The occurrence of flood especially in urban areas brings huge number of damages and loss of lives and properties, thus it is considered one of the major hazards in the country. A Spatial Multi-Criteria Decision Analysis (SPCDA), integrated with the Geographic Information System (GIS) was used to analyze the identified flood hazard and vulnerability parameters that constitute flood risk map. The aim of the study is to develop a decision support tool for flood risk reduction and mitigation in Quezon City, the most populous City in the country. The generation of the tool requires the creation of the flood hazard map and flood vulnerability map. Five factors were taken into consideration in generating the flood hazard map - these are rainfall amount, land use, elevation, river buffer, and road density. Through the Analytical Hierarchy Process (AHP), the individual weights of the five factors were computed. The weights for rainfall, land use, elevation, river buffer, and road density were 46.25%, 9.47%, 22.64%, 13.93% and 7.71%, respectively. The Consistency Ratio (CR) was used to determine the reliability of the weights. Two factors were taken into consideration in generating the flood vulnerability map- these are land use and population density. The Rank Sum Method (RSM) was used to generate the weights of the two vulnerability factors, which provided the values of population density (66.67%) and land use (33.33%). Flood hazard and vulnerability maps were generated at the barangay level. These maps were used as inputs to generate the flood risk map. Consequently, all these maps were generated primarily to support in urban planning and eventually serve as an essential input to decision makers both in the national and local government units in evaluating an effective intervention on how to address flooding especially in urban areas.